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***Neopodocinum* Mites (Arachnida: Acari: Macrochelidae) in Kalimantan**

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Five species of the genus *Neopodocinum* (family Macrochelidae) are reported from the body surface of dung beetles from Kalimantan, Indonesia. *Neopodocinum halimunense* Hartini and Takaku, 2003, *N. maius* Berlese, 1911, and *N. subjaspersi* Hartini and Takaku, 2003 are recorded from Kalimantan for the first time. *Cosmiphis bosschae* (Oudemans, 1901) is referred to the genus *Neopodocinum*, and description of its protonymph is provided, along with redescriptions of its female, male, and deutonymph. *Neopodocinum kalimantanense* is described as new to science; it resembles *N. bosschae* but is distinguishable by the shape of some setae in the middle of female's dorsal shield.

Key Words: *Neopodocinum*, Macrochelidae, mites, Scarabaeidae.

Introduction

In Indonesia, eight species of the mite genus *Neopodocinum* (family Macrochelidae) have so far been recorded: *N. jaspersi* Oudemans, 1903 from Java and Madura; *N. halimunense* Hartini and Takaku, 2003, *N. javense* Krantz, 1965, and *N. subjaspersi* Hartini and Takaku, 2003 from Java; *N. spinirostris* (Berlese, 1910) from Java and Bali; and *N. maius* Berlese, 1911, *N. nederveeni* Oudemans, 1903, and *N. vosi* Oudemans, 1903 from Sumatra. *Cosmiphis bosschae* (Oudemans, 1901), which was treated as *incertae sedis* in the revision of the genus *Neopodocinum* by Krantz (1965), has been recorded from Sumatra and Borneo (=Kalimantan).

The present paper deals with five species of this genus recently collected from Kalimantan. One of these species is described as new to science.

All the present material was taken from the ventral surface of scarabaeid dung beetles collected in pitfall traps baited with human feces, and fixed with 70% ethyl alcohol. Preparation of specimens follows Hartini and Takaku (2003). All measurements are given in micrometres (μm). Measurements in each description are provided as averages and range in parentheses, if more than two specimens were measured. Dorsal chaetotaxy follows Halliday (1987), and other terminology, especially for sternal shield ornamentation, follows Krantz (1965). The holotype of the new species will be deposited in the collection of the Museum Zoologicum Bogoriense, Bogor, Indonesia (MZB), and the remaining specimens will be deposited

in MZB and the Zoological Collection of the Graduate School of Science, Hokkaido University, Sapporo, Japan (ZIHU).

Descriptions and Locality Records

Genus ***Neopodocinum*** Oudemans, 1902

Neopodocinum Oudemans, 1902: 24.

Coprolaelaps Berlese, 1908: 13 (synonymized by Krantz 1965).

Cosmiphis Vitzthum, 1925: 33. **Syn. nov.** (see Notes for *Neopodocinum bosschai* below).

Neopodocinum maius Berlese, 1911

Neopodocinum maius Berlese, 1911: 431.

Neopodocinum coprophilum Vitzthum, 1925: 20–21; Vitzthum 1926: 40–52, figs 25–34 (synonymized by Krantz 1965).

Neopodocinum maius: Krantz 1965: 185–187, figs 47–48.

Berlese (1911) described the male of *Neopodocinum maius* from Sumatra. The female and immatures were described by Vitzthum (1925, 1926), based on Sumatran specimens, under the name *N. coprophilum*.

Material examined. Nine females, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1–4 June 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus* (Linné, 1758) and *Paragymnopleurus maurus* Sharp, 1875; 1 female, Bukit Bangkirai, East Kalimantan, 6–25 February 2002, A. Saim leg., *ex C. molossus*; 6 males, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1–18 June 1993, U. Rosichon and D. C. Darling leg., *ex C. molossus*; 1 deutonymph, 4 protonymphs, Bukit Suharto, Samarinda, East Kalimantan, 21–23 May 1993, U. Rosichon and D. C. Darling leg., *ex C. molossus*; 4 deutonymphs, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 3–4 June 1993, U. Rosichon and D. C. Darling leg., *ex C. molossus*; 1 protonymph, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1 June 1993, U. Rosicon and D. C. Darling leg., *ex C. molossus*.

Carrier beetle. *Copris*-like beetle, *Heliocopris* sp., *Catharsius molossus*, and *Paragymnopleurus maurus*.

Distribution. Sumatra, Kalimantan Island (new record).

Neopodocinum bosschai (Oudemans, 1901), **comb. nov.**

(Figs 1–21)

Emeus bosschai Oudemans, 1901: 290–291, pl. VIII, figs 16–18.

Cosmiphis bosschai: Vitzthum 1925: 33–36; 1926: 88–92, figs 55–57; Krantz 1965: 206.

This species was first described by Oudemans (1901) as *Emeus bosschai*, based on a deutonymph from Borneo. Later, Vitzthum (1925) moved this species to the genus *Cosmiphis*, and described and illustrated the female collected from Sumatra.

[Vitzthum (1926) established genus *Cosmiphis* as a new genus with its diagnosis, whereas in his paper of 1925, he cited *Cosmiphis bosschai* as having been described in 1924 rather than in 1926. It may be due to unanticipated delay in publication of the original description. The species name, i.e., *Cosmiphis bosschai*, was already appeared in the paper of 1925 with description of the male collected from Sumatra, so that the genus *Cosmiphis* in 1925 should be available on the basis of Articles 11.8 and 12.1 of ICZN]. Krantz (1965) suggested that *Cosmiphis bosschai* might be a member of the genus *Neopodocinum* due to its general similarity to this genus (see "Notes" section following the treatment of this species herein). Below we provide figures of the male and description of the protonymph for the first time, together with redescriptions of the female, male, and deutonymph.

Female. Length of dorsal shield 1339 (1310–1400), width at level of coxae II 721 (700–760) (n=7). Color in life reddish brown.

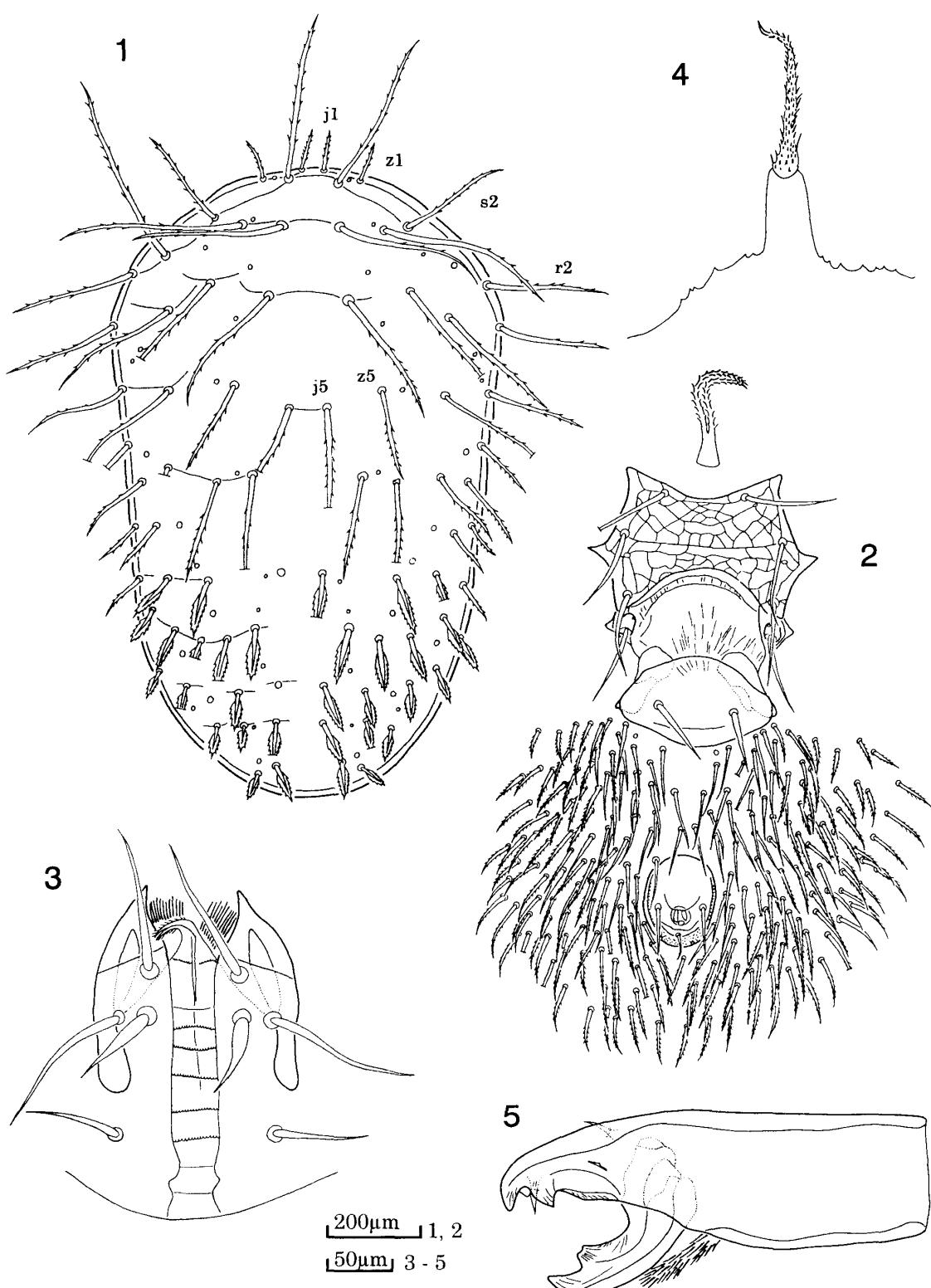
Dorsum (Fig. 1). Dorsal shield oval, attenuated posteriorly; insertions of most dorsal setae connected by numerous transverse ridges; lateral margins of shield smooth; shield with more than 40 pairs of dorsal setae and 22 pairs of pores; podonotal setae pilose in their distal half or 2/3; opisthonotal setae broadened and pectinate; unpaired seta Jx absent.

Venter (Fig. 2). Tritosternum well developed and with pilose laciniae. Sternal shield wider than long, 171 (150–185) long and 324 (315–335) wide at level of coxae II (n=7); surface of shield with polygonal ornamentation and punctation, complete linea media transversa (l.m.t.), 3 pairs of simple setae, and 2 pairs of pores; all setae long and surpassing insertions of setae behind them. Metasternal shield small, free from sternal shield; each shield with long, simple seta and anterior pore. Endopodal shield fused with posterior parts of sternal plate.

Length of epigynial shield 200 (175–210), width 316 (300–340) (n=7); anterior part of shield with polygonal ornamentation and pair of long, simple setae centro-laterally. Anal shield small, oval, longer than wide, 195 (185–210) long and 149 (135–160) wide (n=7); shield with pair of paranal setae, 1 postanal seta, and pair of pores on posterior margin, all setae simple. Cribrum located on posterior margin of anal shield, with anterior extensions surpassing level of paranal setae. Peritreme joining stigma at point lateral to coxae III–IV, and extending anterodorsally to point lateral to seta z1. Opisthogaster bearing more than 50 pairs of simple or pectinate setae; region anterior to anal shield with simple setae, and region posterior to anal shield and posterior margin of idiosoma with pectinate setae, most setae surpassing insertions of setae behind them; postcoxal pore fused to podal shield.

Gnathosoma (Fig. 3). Well developed and sclerotized; deutosternal groove with 5 transverse rows of denticles; 3 pairs of hypostomal setae and 1 pair of palpcoxal setae present, all setae simple; external posterior hypostomal setae longer than other setae, internal posterior hypostomal setae thick at base and attenuate to tip. Palpal chaetotaxy of trochanter, femur, and genu 2–5–6; palptarsus with trifurcate apotele. Tectum unipartite, with long spine laterally (Fig. 4). Fixed digit of chelicera (Fig. 5) with simple dorsal seta, robust median tooth, small distal tooth, *pilus dentilis*, and terminal hook; movable digit with median bidentate tooth and terminal hook; arthrodial process strongly pilose; length of fixed digit 319 (300–335), of movable digit 121 (115–135) (n=7).

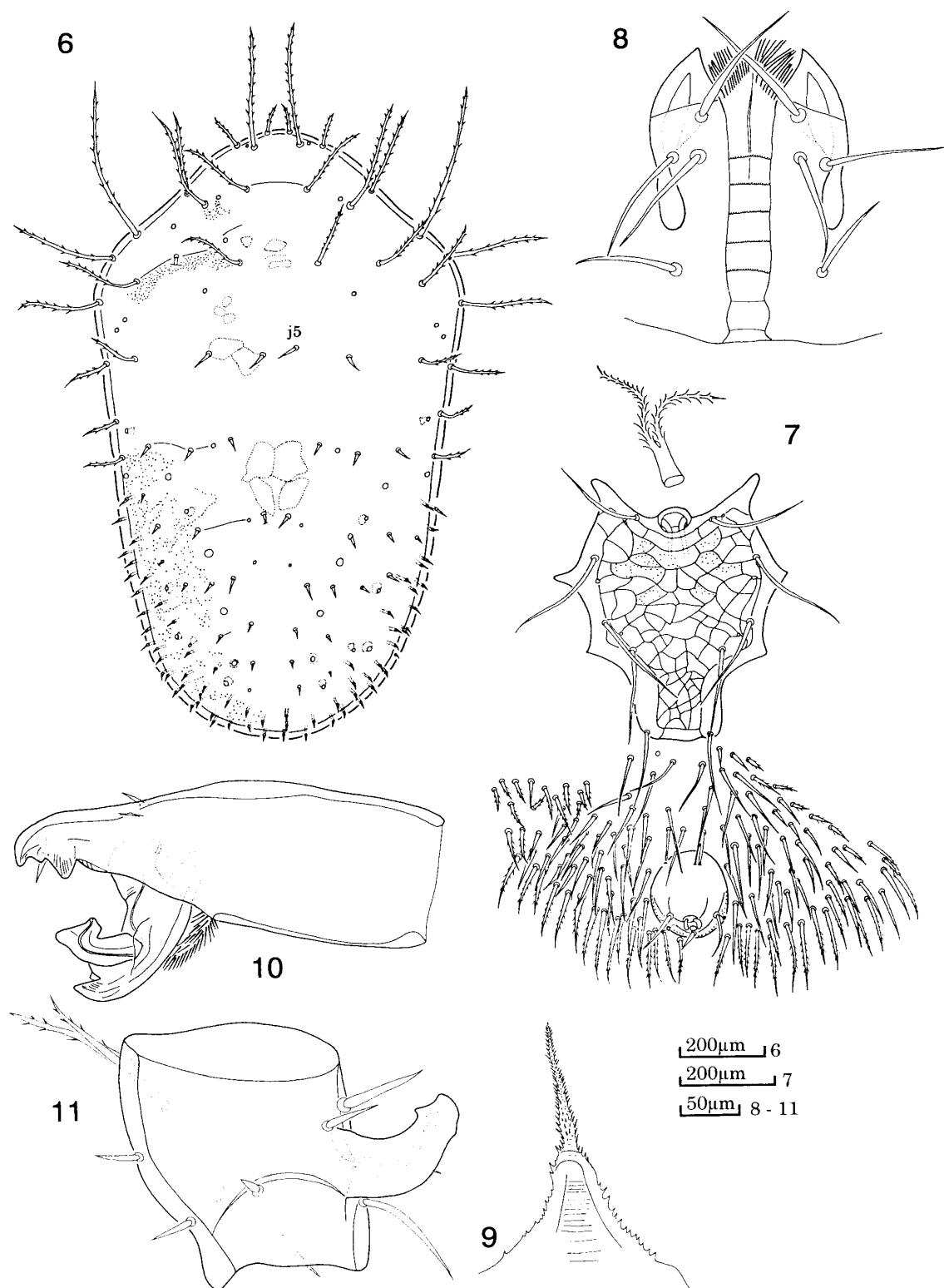
Legs. Tarsi I with ambulacra and minute paired structures like small claws, as



Figs 1–5. *Neopodocinum bosschai*, female. 1, dorsum; 2, venter; 3, ventral view of gnathosoma; 4, tectum; 5, chelicera.

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Figs 6-11. *Neopodocinum bosschai*, male. 6, dorsum; 7, venter; 8, ventral view of gnathosoma; 9, tectum; 10, chelicera; 11, femur II.

in *N. spinirostris* (see Takaku and Hartini 2001). Tarsi II–IV with developed ambulacra and claws. Most leg segments with simple and pilose setae, except for coxae I–IV, tarsi I and III, and trochanter I with only simple setae, and for tarsus II with simple and thick setae; coxae I with 1 ridge ventrally, coxae II–IV each with 2 ridges posteriorly. Leg chaetotaxy typical for genus: trochanter III with 4 setae; genu IV with 7 simple and pilose setae, its chaetotaxy 1, 2/1, 2/0, 1. Leg lengths (excluding ambulacra, n=7): leg I, 977 (920–1020); leg II, 1012 (930–1060); leg III, 1154 (1120–1200); leg IV, 1521 (1450–1560).

Sacculus foemineus. Not observed.

Male. Length of dorsal shield 1526 (1400–1650), width 719 (700–730) (n=8). Living specimens reddish brown.

Dorsum (Fig. 6). Dorsal shield oval, attenuated posteriorly; surface ornamented with punctuation around z2, z4, j4, and s4 and on posterolateral margin; lateral margins of shield smooth; shield with more than 60 pairs of setae and 22 pairs of pores; anterior and anteromarginal setae long and pilose; setae behind j5 smaller and simple; posterior marginal setae minute and simple.

Venter (Fig. 7). Tritosternum as in female. Sternovenital shield longer than wide; length 493 (475–515), width at level of coxae II 380 (370–385) (n=8); surface of shield ornamented with slight reticulation; l.m.t. complete but not straight; shield with 5 pairs of simple setae and 3 pairs of pores, all setae long and simple and reaching or surpassing insertions of setae behind them. Anal shield oval and longer than wide, length 193 (175–200), width 163 (150–170) (n=8); shield with pair of paranal setae and 1 postanal seta, all setae simple; cribrum located on posterolateral margin of anal shield, its anterior extinctions surpassing level of paranal setae. Opisthogaster bearing more than 50 pairs of simple or pectinate setae. Peritrematic shield joining stigma at point lateral to coxae III–IV; peritreme extending anterodorsally to point lateral to seta z1.

Gnathosoma (Fig. 8). Well developed and sclerotized; deutosternal groove with 5 transverse rows of denticles; 3 pairs of hypostomal setae and pair of palpcoxal setae present, all setae simple; internal hypostomal setae similar in length to external hypostomal setae. Palpal chaetotaxy of trochanter, femur, and genu 2–5–6; palp-tarsus with trifurcate apotele. Tectum (Fig. 9) unipartite, with many small spines laterally and dorsally; base serrate laterally. Fixed digit of chelicera (Fig. 10) with simple dorsal seta, robust median tooth, small distal tooth, *pilus dentilis*, and terminal hook; movable digit with median tooth, spermatodactyl, and terminal hook; spermatodactyl short and cleft; arthrodial process strongly pilose; length of fixed digit 365 (340–380), of movable digit 156 (140–170) (n=8).

Legs. Tarsi I–IV as in female. Most leg segments with simple and pilose setae, except for coxae I–IV, trochanters I–II, and tarsi I and III with only simple setae, and for tarsus II with simple and thick setae. Coxa I and trochanter II each with 1 ridge posteroventrally; coxae II–IV each with 2 ridges posteriorly; femur II with large spur (Fig. 11); genu, tibia, and tarsus II each with small spur. Leg chaetotaxy as in female. Leg lengths (excluding ambulacra, n=8): leg I, 1064 (1000–1180); leg II, 1216 (1150–1270); leg III, 1278 (1230–1300); leg IV, 1724 (1670–1774).

Deutonymph. Length of dorsal shield 984 (950–1040), width 566 (510–580) (n=7). Living specimens yellowish brown.

Dorsum (Fig. 12). Dorsal shield attenuated posteriorly and without lateral incision; surface ornamented with ridges and punctuation; lateral margin smooth;

shield bearing 40 pairs of dorsal setae and 22 pairs of pores; unpaired seta Jx absent; j1-j3, z1, z2, s2, s4, r2-r4 pilose, other setae pectinate.

Venter (Fig. 13.). Tritosternum as in female. Sternoventral shield longer than wide, 339 (320–360) long and 285 (275–300) wide at level of second sternal pore ($n=7$); l.m.t. complete; surface of shield polygonal with reticulation and with 4 pairs of simple setae and 3 pairs of pores; all setae long and surpassing insertions of setae behind them. Anal shield oval, longer than wide, 146 (135–150) long and 96 (90–105) wide ($n=7$); shield with pair of paranal setae and 1 postanal seta, all setae simple; pair of pores located at lateral side of cibrium. Cibrium located on posterolateral margin of anal shield, with anterior extension surpassing paranal setae. Opisthogaster bearing more than 50 pairs of simple and pectinate setae. Postcoxal pore as in female.

Gnathosoma (Fig. 14). Well developed and sclerotized; deutosternal groove with 5 transverse rows of denticles; 3 pairs of hypostomal setae and 1 pair of palpal-coxal setae present. Internal posterior hypostomal setae short, thick, spine-like; other setae simple. Palpal chaetotaxy of trochanter, femur, and genu 2–5–6; palptarsus with trifurcate apotele. Tectum (Fig. 15) unipartite. Fixed digit of chelicera (Fig. 16) with simple dorsal seta, robust median tooth, small distal tooth, *pilus dentilis*, and terminal hook; movable digit with median bidentate tooth, small distal tooth, and terminal hook; arthrodial process strongly pilose; length of fixed digit 257 (240–280), of movable digit 111 (90–120) ($n=7$).

Legs. Tarsus I–IV as in female. Most leg segments with simple and pilose setae, except for coxae I–IV, trochanters I–III, femurs III and IV, tibia II and IV, and tarsi I, III, and IV with only simple setae, and for tarsus II with simple and thick setae; coxae II–IV each with 2 ridges posteriorly. Leg chaetotaxy typical for genus: trochanter III with 4 setae; genu IV with 7 setae, its chaetotaxy 1, 2/1, 2/0, 1. Leg lengths (excluding ambulacra, $n=7$): leg I, 761 (700–840); leg II, 804 (750–900); leg III, 913 (860–1000); leg IV, 1261 (1170–1400).

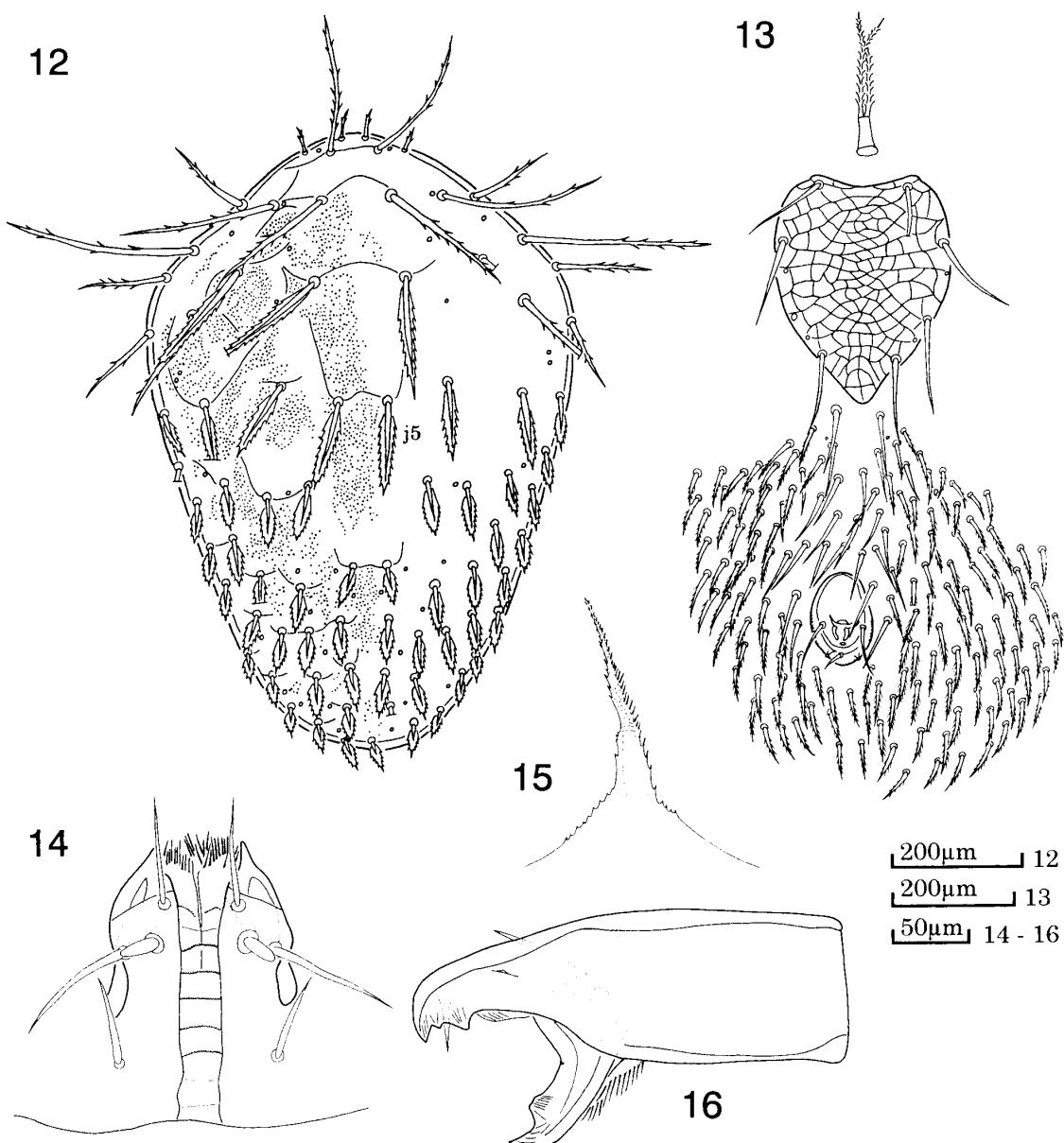
Protonymph. Length of podonotal shield 502 (475–520), width 334 (331–360) ($n=6$). Length of opisthonotal shield 176 (170–190), width 320 (310–325) ($n=6$). Living specimens yellowish brown.

Dorsum (Fig. 17). Podonotal shield convex posteriorly, ornamented with lines between j3 and z2, j4 and z4, and s4 and s5; shield bearing 11 pairs of pilose setae and 5 pairs of pores; j1 short, pilose, and its pilosity stronger than that of other setae. Opisthonotal shield concave anteriorly and with many transverse lines; 11 pairs of pectinate setae and 8 pairs of pores present.

Venter (Fig. 18). Tritosternum as in female. Sternoventral shield with slight reticulation and punctuation; shield longer than wide, 262 (255–265) long and 213 (200–220) wide at level of second sternal pore ($n=6$); l.m.t. complete; shield bearing 3 pairs of long, simple setae surpassing insertions of setae behind them and 2 pairs of pores.

Anal shield concave anteriorly and pointed posteriorly, longer than wide, 126 (120–135) long and 68 (60–70) wide ($n=6$); shield with pair of paranal setae and 1 postanal seta; cibrium with paranal extensions. Opisthogaster bearing more than 50 pairs of simple and pectinate setae.

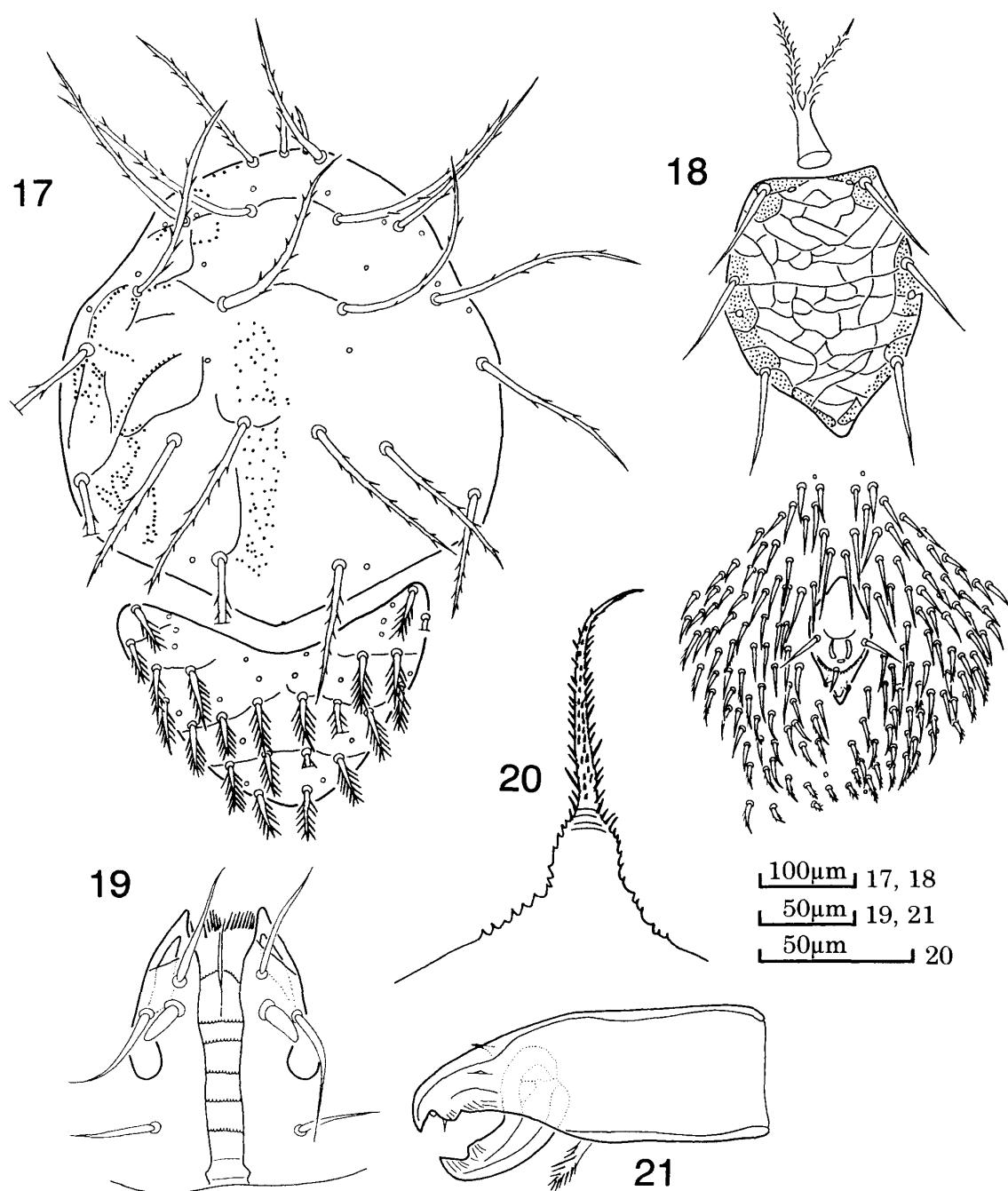
Gnathosoma (Fig. 19). Well developed, palpal chaetotaxy of trochanter, femur, and genu 1–4–5; internal posterior hypostomal setae as in deutonymph. Tectum unipartite (Fig. 20). Fixed digit of chelicera (Fig. 21) with simple dorsal seta, robust



Figs 12–16. *Neopodocinum bosschai*, deutonymph. 12, dorsum; 13, venter; 14, ventral view of gnathosoma; 15, tectum; 16, chelicera.

median tooth, small distal tooth, *pilus dentilis*, and terminal hook; movable digit with median bidentate tooth and terminal hook; arthrodial process strongly pilose; length of fixed digit 188 (180–200), of movable digit 83 (75–90) (n=6).

Legs. Tarsi I with ambulacrum and small paired claws; tarsi II–IV with developed ambulacra and claws. Most leg segments with simple and/or pilose setae except for coxae I–IV, trochanters I and III, and tarsus I with only simple setae, and for tarsus II with simple and thick setae. Coxa I with 1 ridge ventrally, coxae II–IV each with 2 ridges posteriorly. Leg chaetotaxy typical for protonymphs in this genus: trochanter III with 4 simple setae; genu IV with 5 simple and pilose setae, its chaetotaxy 1, 2/0, 2/0, 0. Leg lengths (excluding ambulacrum, n=6): leg I, 600



Figs 17–21. *Neopodocinum bosschai*, protonymph. 17, dorsum; 18, venter; 19, ventral view of gnathosoma; 20, tectum; 21, chelicera.

(540–660); leg II, 618 (540–650); leg III, 690 (680–720); leg IV, 937 (890–1000).

Material examined. Four females, 2 males, 2 deutonymphs, Bukit Bangkirai, Batuampar, Kutai Kertanegara, East Kalimantan, 6–25 February 2002, A. Saim leg., *ex Catharsius molossus*; 2 females, 1 male, 4 protonymphs, Bukit Suharto, Samarinda, East Kalimantan, 21–23 May 1993, U. Rosichon and D. C. Darling leg., *ex C. molossus*; 1 female, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan,

3–4 June 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*; 5 males, 2 deutonymphs, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1 June 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*; 3 deutonymphs, Bukit Suharto, Samarinda, East Kalimantan, 21–23 May 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*, *Onthophagus schwaneri* Vollenh., 1864, *Paragymnopleurus maurus*; 3 protonymphs, alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1–4 June 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*.

Carrier beetle. *Copris*-like beetle, *Catharsius molossus*, *Paragymnopleurus maurus*, and *Onthophagus schwaneri*. The present species also has been collected from decaying leaves.

Distribution. Sumatra, Kalimantan Island.

Notes. *Cosmiphis bosschae* has many pectinate setae on the dorsal shield, a small anal shield, and tarsus I bearing an ambulacrum (Oudemans 1901; Vitzthum 1926). Since these conditions agree with those of our specimens collected in Kalimantan, we identified the latter as *C. bosschae*. In his review of the genus *Neopodocinum*, Krantz (1965) pointed out that *C. bosschae* might be a member of *Neopodocinum* because of its narrow, unipartite tectum and ventral aspects. Beside this, *C. bosschae* has trochanter III with only 4 setae. Since all those characteristics are consistent with the diagnostic characters of the genus *Neopodocinum*, *Cosmiphis bosschae* should be referred to *Neopodocinum*, and the monotypic genus *Cosmiphis* should be synonymized with *Neopodocinum*.

***Neopodocinum halimunense* Hartini and Takaku, 2003**

Neopodocinum halimunensis Hartini and Takaku, 2003: 49–56, figs 1–25, 53–55.

Hartini and Takaku (2003) described and illustrated all stages of *Neopodocinum halimunense* based on specimens from West Java, Indonesia.

Material examined. One male, alt. 350 m, Pujungan, Kayan Mentarang, East Kalimantan, 29 May 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*.

Carrier beetle. *Onthophagus* sp. and *Catharsius molossus*.

Distribution. West Java, Kalimantan Island (new record).

***Neopodocinum subjaspersi* Hartini and Takaku, 2003**

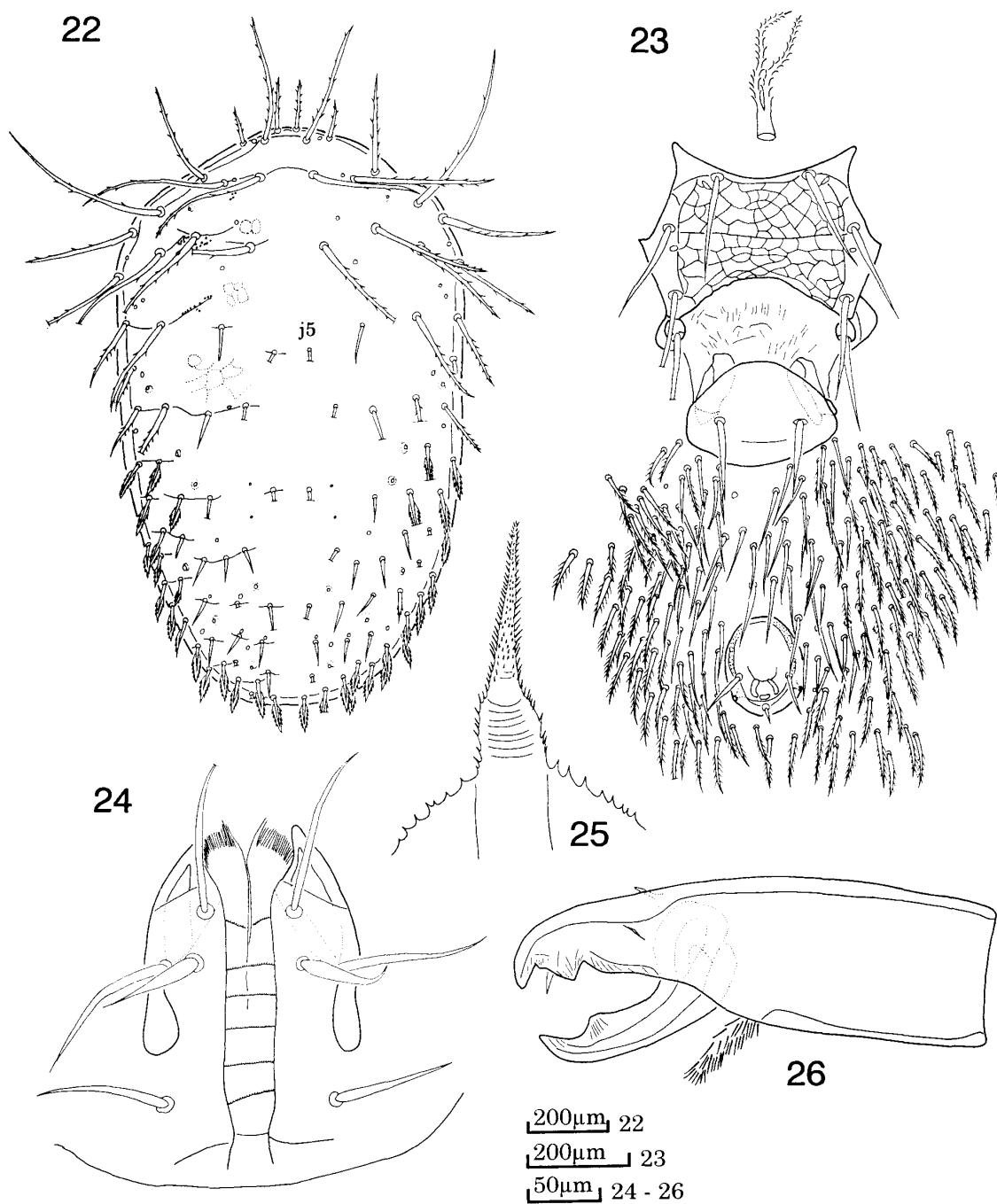
Neopodocinum subjaspersi Hartini and Takaku, 2003: 56–64, figs 26–29, 32–52, 56.

Most of the characters of the present specimens agree with those of the type series of *N. subjaspersi*; however, the opisthogastric setae of the former are shorter than those of the type series.

Material examined. Two females, 1 male, and 1 deutonymph, alt. 0–350 m, Pujungan, Kayan Mentarang, East Kalimantan, 18 June 1993, U. Rosichon and D. C. Darling leg., *ex Catharsius molossus*.

Carrier beetle. *Onthophagus* sp. and *Catharsius molossus*.

Distribution. West Java, Kalimantan Island (new record).



Figs 22–26. *Neopodocinum kalimantanense* sp. nov., female, holotype (Mzb. Acar. 2575). 22, dorsum; 23, venter; 24, ventral view of gnathosoma; 25, tectum; 26, chelicera.

***Neopodocinum kalimantanense* sp. nov.**
(Figs 22–26)

Type series. Holotype: female (Mzb.Acar.2575), alt. 890 m, Pujungan, Kayan Mentarang, East Kalimantan, 1 June 1993, U. Rosichon and D. C. Darling leg., ex *Catharsius molossus*. Paratypes: 4 females, other data same as for holotype; 1 fe-

male, Bukit Suharto, Samarinda, East Kalimantan, 21–23 May 1993, U. Rosichon and D. C. Darling leg., *ex C. molossus*.

Female. Length of dorsal shield 1372 (1330–1490), width at level of coxae II 717 (700–730) (n=6). Living specimen reddish brown.

Dorsum (Fig. 22). Dorsal shield oval, attenuated posteriorly; insertions of most dorsal setae away from midline connected by short transverse ridges; lateral margins of shield smooth; shield bearing more than 50 pairs of dorsal setae and 22 pairs of pores; unpaired seta Jx absent; most podonotal setae pilose, but medial setae from j5 to posteromarginal setae simple and short; lateral and marginal setae pectinate.

Venter (Fig. 23). Tritosternum well developed and with pilose laciniae. Sternal shield wider than long, 189 (175–200) long and 299 (285–310) wide at level of coxae II (n=6); surface of shield with polygonal ornamentation; l.m.t. complete; shield with 3 pairs of simple setae and 2 pairs of pores; all setae long and surpassing insertions of setae behind them. Endopodal shield fused with sternal shield. Metasternal shield small and free from sternal shield; each shield with simple seta and anterior pore.

Epigynial shield wider than long, 208 (200–215) long and 290 (280–300) wide (n=6), with pair of auxiliary sclerites but without ornamentation. Anal shield small, oval, longer than wide, 192 (180–205) long and 140 (125–150) wide (n=6); shield with pair of paranal setae, 1 postanal seta, and pair of pores on posterior margin, all setae simple; cribrum located on lateral margin of anal shield with its anterior extensions surpassing level of paranal setae. Opisthogaster bearing more than 50 pairs of simple and pectinate setae; most of setae surpassing insertions of setae behind them; postcoxal pore fused to podal shield. Peritrematic shield developed, with short posterior extension and long lateral fossa; anterior extremities of peritreme extending to point lateral of seta z1.

Gnathosoma (Fig. 24). Well developed and sclerotized; deutosternal groove with 5 transverse rows of denticles; 3 pairs of hypostomal setae and palpcoxal setae present, all setae simple; internal posterior hypostomal setae thick at base and pointed distally. Palpal chaetotaxy of trochanter, femur, and genu 2–5–6; palp tarsus with trifurcate apotele. Tectum (Fig. 25) unipartite, with long spine laterally. Fixed digit of chelicera (Fig. 26) with simple dorsal seta, robust median tooth, small distal tooth, *pilus dentilis*, and terminal hook; movable digit with median bidentate tooth and terminal hook; arthrodial process strongly pilose; length of fixed digit 325 (300–350), of movable digit 145 (135–155) (n=6).

Legs. Tarsi I with ambulacrum and minute paired structures like small claws (as in *N. bosschai*). Tarsi II–IV with developed ambulacra and claws. Most segments with simple and pilose setae except for coxae I–IV and tarsi II and III with only simple setae, and for tibia II with simple and thick setae; coxa I with 1 ridge ventrally; coxae II–IV each with 2 ridges posteriorly. Leg chaetotaxy typical for this genus: trochanter III with 4 setae; genu IV with 7 simple and pilose setae and its chaetotaxy 1, 2/1, 2/0, 1.

Leg lengths (excluding ambulacra, n=6): leg I, 933 (800–1000); leg II, 937 (830–1030); leg III, 1115 (1090–1150); leg IV, 1552 (1160–1630).

Sacculus foemineus. Not observed.

Male and immature stages. Unknown.

Etymology. The specific name is derived from the type locality.

Remarks. The present species is very similar to *Neopodocinum bosschai* from Sumatra and Kalimantan, as redescribed herein. It differs from the latter in the medial dorsal setae from j5 to J5, which are simple and short (all these setae are pectinate and longer in *N. bosschai*; cf. Fig. 1).

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References

Berlese, A. 1908. Elenco di generi e specie nuove di Acari. Redia 5: 1–15.
Berlese, A. 1911. Acarorum species novae quindecim. Redia 7: 429–435.
Halliday, R. B. 1987. Further observations on the dorsal idiosomal chaetotaxy in the Macrochelidae (Acarina). International Journal of Acarology 13: 51–53.
Hartini, S. and Takaku, G. 2003. Mites of the macrochelid genus *Neopodocinum* (Arachnida: Acari: Gamasida: Macrochelidae) associated with dung beetles in West Java, Indonesia. Species Diversity 8: 47–65.
Krantz, G. W. 1965. A review of the genus *Neopodocinum* Oudemans, 1902 (Acarina, Macrochelidae). Acarologia 7: 139–226.
Oudemans, A. C. 1901. Notes on Acari. Tijdschrift der Nederlandsche Dierkundige Vereeniging 7: 276–311.
Oudemans, A. C. 1902. New list of Dutch Acari. Second part. Tijdschrift voor Entomologie 45: 1–52.
Takaku, G. and Hartini, S. 2001. Macrochelid mites (Arachnida: Acari: Macrochelidae: *Glyptolaspis*, *Macrocheles*, *Neopodocinum*) associated with dung beetles in Bali, Indonesia. Species Diversity 6: 323–345.
Vitzthum, H. G. 1925. Fauna Sumatrensis (Beitrag No. 5). Acarinae. Supplementia Entomologica 11: 1–79.
Vitzthum, H. G. 1926. Malayische Acari. Treubia 8: 1–198.